

EVALUATION OF SOUTHERN PINE BEETLE INFESTATIONS
ON THE CHERRY POINT MARINE CORPS AIR STATION
RESERVATION, NORTH CAROLINA

By

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The Cherry Point Marine Corps Air Station is located along the Atlantic Coast near Havelock, N. C. (Fig. 1). The reservation contains approximately 5,400 acres of forest land which is managed to provide wood products, recreation, and a variety of other benefits. Currently the Cherry Point Reservation has an outbreak of the southern pine beetle, *Dendroctonus frontalis* Zimm. This outbreak is part of a Southwide problem involving more than 50 million acres in 10 states.

The purpose of this report is to document the outbreak on the Cherry Point Reservation and to determine its probable course. The evaluation was conducted on April 17, 1975, by J. D. Ward of the U. S. Forest Service with the assistance of Mr. John Mease of Cherry Point's Natural Resources and Environmental Affairs Office. The U. S. Forest Service has the responsibility on all federal lands for conducting forest insect and disease evaluations and for providing technical assistance as needed to suppress outbreaks of forest insect and disease pests.

TECHNICAL INFORMATION

Insect - Southern pine beetle, *Dendroctonus frontalis* Zimm.

Importance - This beetle is considered the most destructive insect enemy of pines in the southern United States and Mexico. Outbreaks may occur at irregular intervals every 10 to 20 years and generally last from 2 to 5 years.

Hosts - All species of southern yellow pine are attacked. However, loblolly, *Pinus taeda*, and shortleaf, *P. echinata*, pines are the preferred hosts. On the Cherry Point Reservation the beetle is attacking loblolly pine.

Description of Timber Resources at Cherry Point - According to the Forest Management Plan for the Reservation, there are approximately 6 million board feet of pine sawtimber and 23,000 cords of pine pulpwood on the 5,000-acre area. About 83 percent of the timber on the reservation is pine.

Type of Damage - Attacks almost always result in the death of the trees. The adult beetles girdle the host by mining in the cambium layer while constructing egg galleries. Also, the adult beetles introduce blue staining fungi, *Ceratocystis* spp., which block water conduction in the stem. Individual infestations may range from one tree to several thousand trees.

Life Cycle - The adult southern pine beetle is a dark reddish brown beetle about 1/8-inch long. The beetles attack trees in masses and construct winding S-shaped egg galleries in the cambium. Eggs deposited along the galleries hatch into whitish, legless grubs (larval stage) that feed in the cambium. When fully developed, the larvae mine to the outer bark where they pupate and transform to adults. New adults chew their way to the outside and fly to green trees in the area. The complete life cycle takes about a month during the summer and as many as four or five generations may be produced in this area.

METHODS

Standard aerial sketchmap and ground techniques were utilized during the current evaluation.^{1/} A 100-percent aerial survey was made by helicopter on the 5,000-acre area. All spots of dead and dying pines were plotted on maps and five spots were checked on the ground to confirm the cause of mortality. Infested bark samples were taken from two trees to determine the brood density and to observe the general condition of the beetle population.

RESULTS AND DISCUSSION

Results of this evaluation showed a moderate to high level of southern pine beetle activity on the Cherry Point Reservation. The aerial survey revealed 24 beetle spots ranging in size from single trees to approximately 30 acres. All spots of dying trees ground checked were caused by the southern pine beetle. Examination of infested bark samples showed approximately 600 beetles per square

^{1/} Procedures outlined in "Evaluating Southern Pine Beetle Infestations." USDA, USFS, S&PF, Div. FPM-8, 1970.

foot of bark surface. Few parasites or predators were observed and there has been very little beetle mortality resulting from disease.

Due to the mild winter and high population potential, the outbreak is expected to continue during the summer and fall of 1975.

The Office of Natural Resources and Environmental Affairs at Cherry Point should be commended for the excellent suppression program they have initiated. Their aggressive efforts to remove the infestation during the past fall and winter have reduced tree losses considerably.

RECOMMENDATIONS

Unless infestations are removed from the Reservation, additional tree mortality will occur during the coming summer and fall. The decision regarding the need for suppression and methods of suppression to use should be made by the forest managers of the Cherry Point Reservation. Some of the factors which might be considered in making this decision include:

1. Impact of beetle damage to timber resources and scenic areas at Cherry Point.
2. Threat of beetles spreading from the Reservation to adjoining private lands.
3. Availability of a suitable suppression method.
4. Cost/benefit ratio.
5. Impact of suppression measures to the environment.
6. Safety and fire hazard caused by the deteriorating beetle-killed trees.

Most of these factors are discussed in the Environmental Statement entitled Strategy for Control of the Southern Pine Beetle in the Southeastern United States.

There are currently three direct methods of suppressing southern pine beetles recommended by the U.S.D.A. Forest Service. The first method, which is also the most desirable, is to remove the infested trees. This can be accomplished by commercial sale of the infested trees or by hiring a contractor to remove the infestations. The other two methods are to pile and burn the infested trees or cut and spray the infested trees with a 1/2 percent solution of lindane. This chemical is approved by the U.S.D.A. for control of the southern pine beetle. Any of the above methods should be done by highly trained and experienced personnel.

These methods will not guarantee that the pine stands will not be reattacked but they will stop the spread of individual infestations if done properly. Specific details for using any of these methods are available from the U. S. Forest Service, Forest Pest Management Office in Asheville, N. C.

PRECAUTIONARY PESTICIDE USE STATEMENT

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers under lock and key -- out of the reach of children and animals -- away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish, and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or in ways that may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear protective clothing and equipment if specified on the container.

If your hands become contaminated with a pesticide, do not eat or drink until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicides from equipment, do not use the same equipment for insecticides or fungicides that you use for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary land-fill dump, or crush and bury them in a level, isolated place.

NOTE: Some States have restrictions on the use of certain pesticides. Check your State and local regulations. Also, because registrations of pesticides are under constant review by the U.S. Department of Agriculture, consult your county agricultural agent or State Extension specialist to be sure the intended use is still registered.

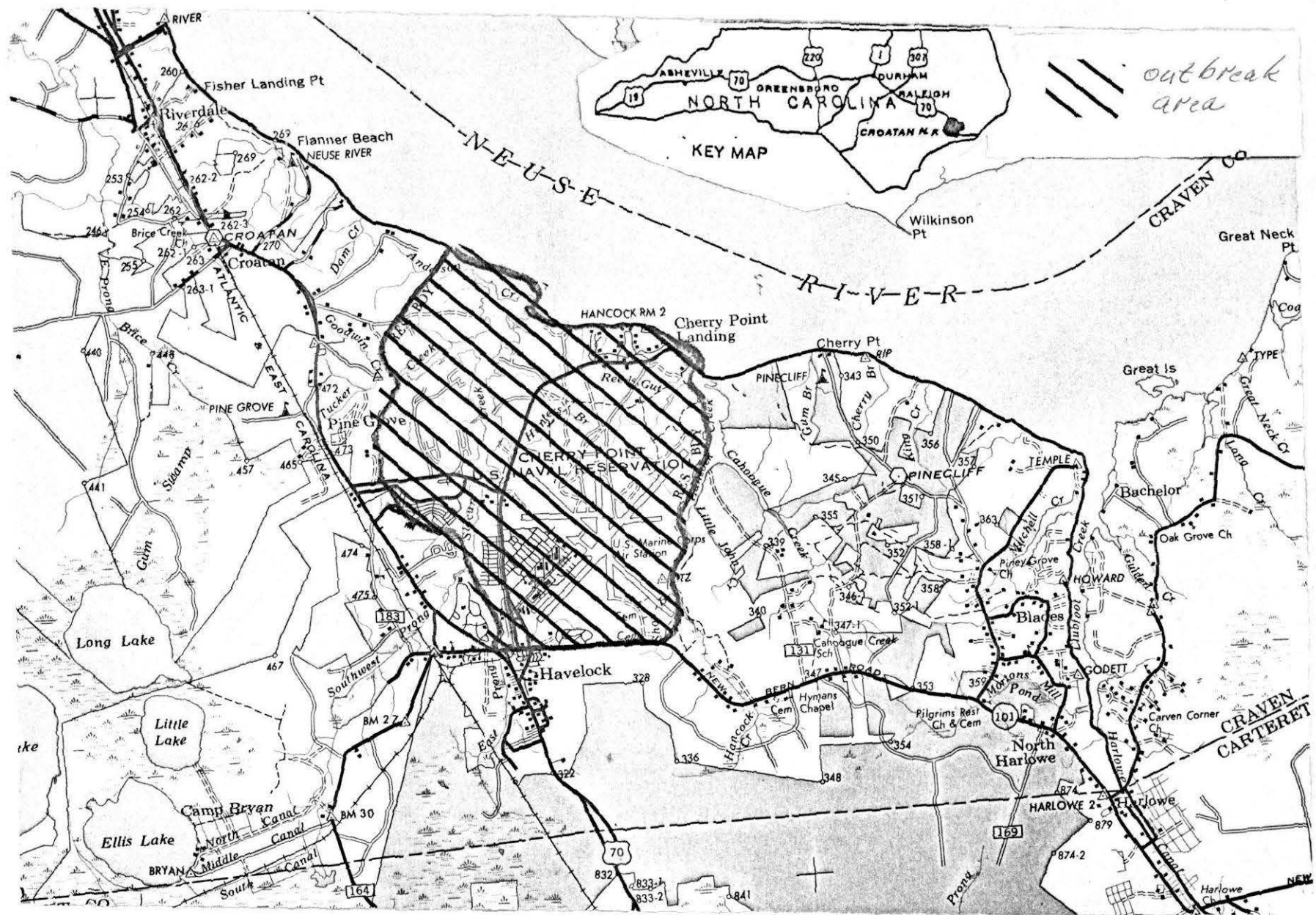


Figure 1. Location of southern pine beetle outbreak area at the Cherry Point Marine Corps Air Station Reservation, North Carolina, 1975.